

The background of the slide is an aerial photograph. On the left side, a river with a blue-green hue winds through a landscape of brown and tan fields. On the right side, a dense urban area is visible, characterized by a grid of streets and buildings. The text 'Service Center GPS' is centered over the boundary between the rural and urban areas.

Service Center GPS

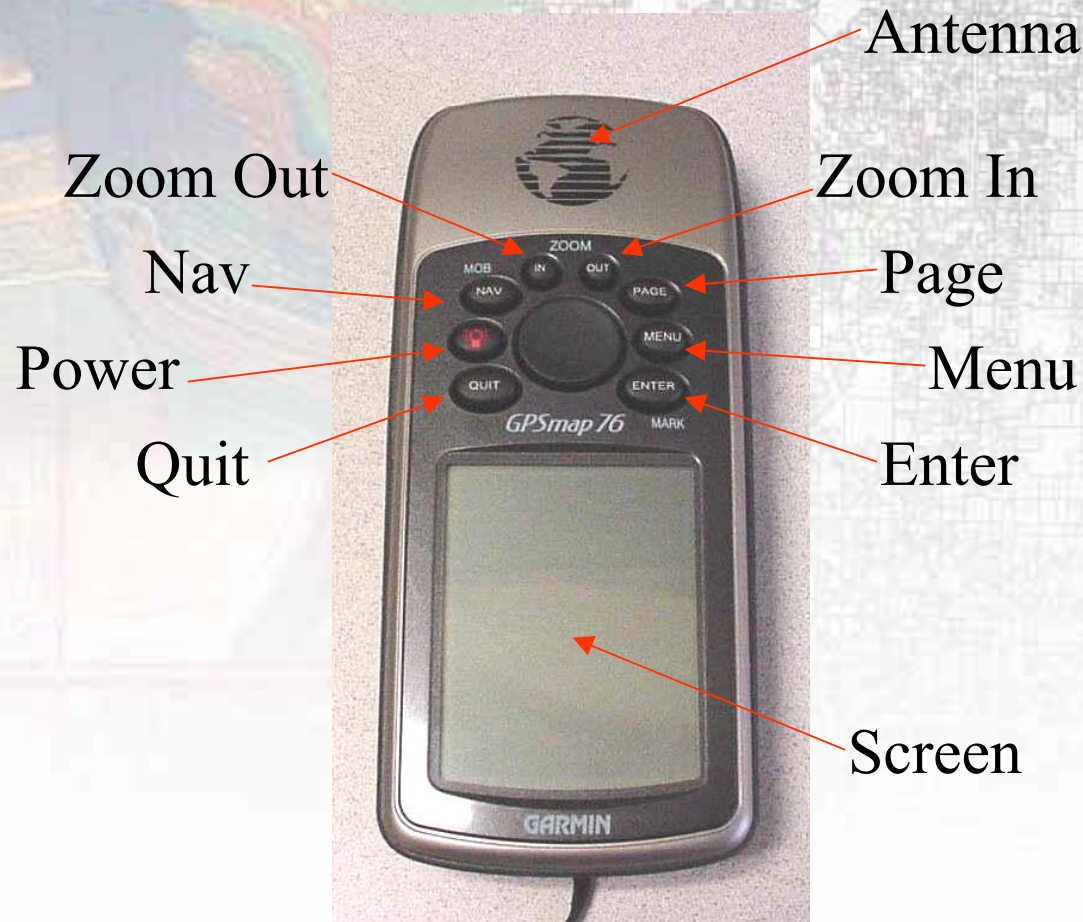
Goals & Purposes of GPS Core

- Learn the layout of the Map76
- Adjust unit settings
- Configure the unit to use differential correction
- Upload a background map
- Collect GPS data

The background of the slide is a composite image. The left side shows a colorful aerial view of agricultural fields with various shades of green, brown, and blue, separated by winding paths or rivers. The right side shows a grayscale aerial view of a city with a clear grid pattern of streets and buildings.

Layout and Setup of the Garmin Map76

Layout and Button Functions of the Garmin GPSMap76



Back of the unit



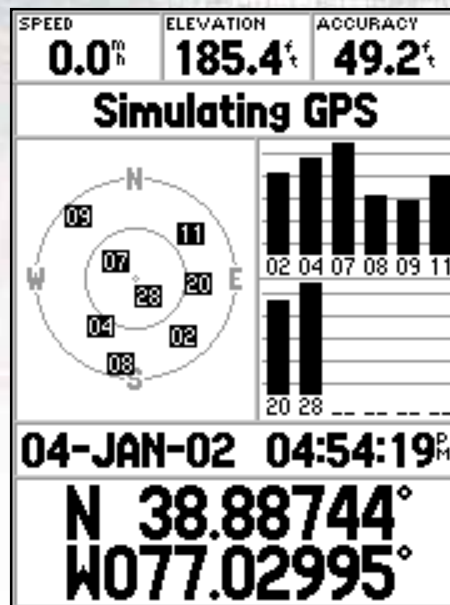
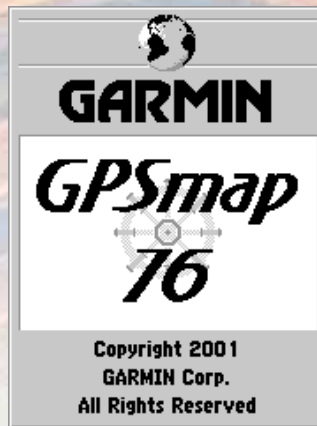
Antenna Cable
Port

Battery
Compartment

Power/Data
Port



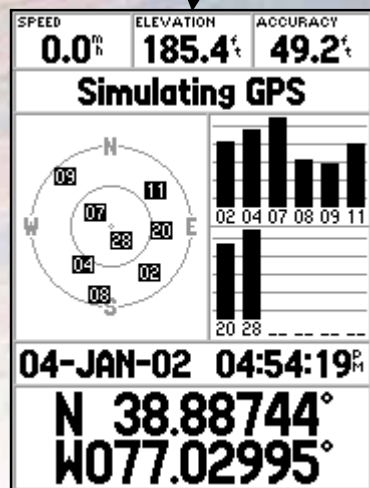
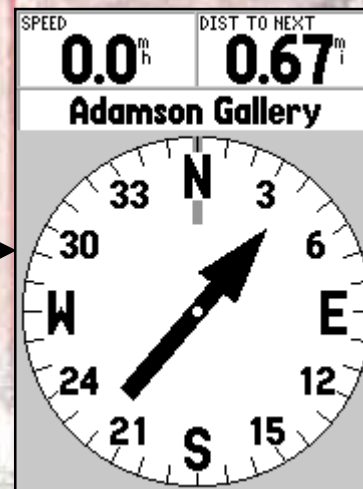
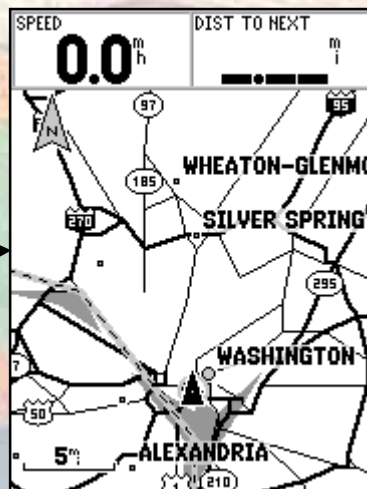
Turning on the Map76



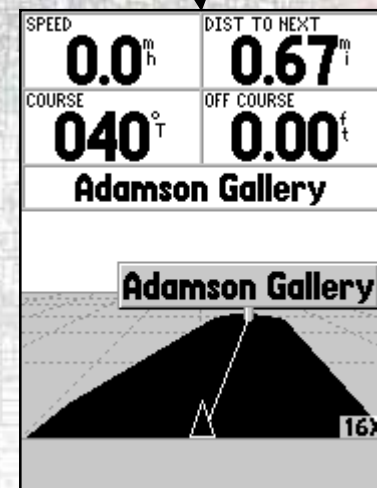
Setting the Map76 to Simulator Mode

- Press the **Menu** key once with the **GPS Information** page open.
- Use the **Rocker** key to highlight the “Start Simulator” option from the list.
- Press the **Enter** key to accept the choice
- Exit the simulator mode by repeating this procedure and choosing the “Stop Simulator” option.





Pages on the Map76

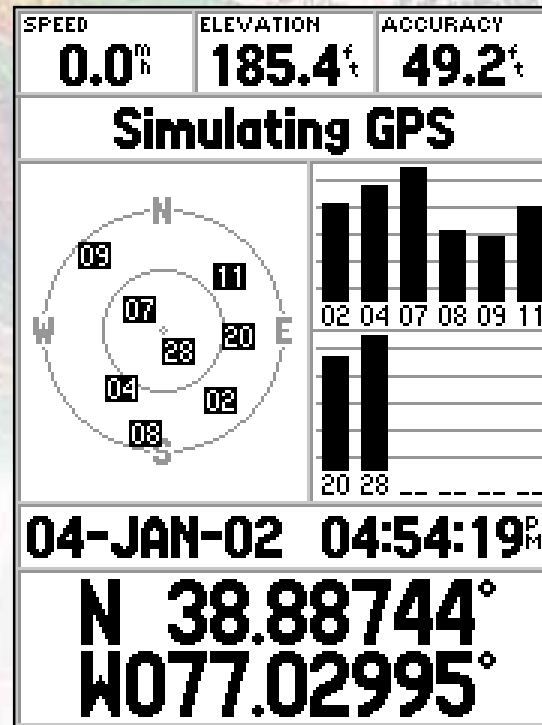


Active Route	
ADMSNG-THMSJF	
Waypoint	Distance
Adamson Ga	0.00
Washington	0.30
Lincoln Mem	1.11
Thomas Jef	2.04
Total	
	2.04

GPS Information Page

Sky Map →

Position →



Receiver Status
Message

Satellite Strength
Indicator Bars

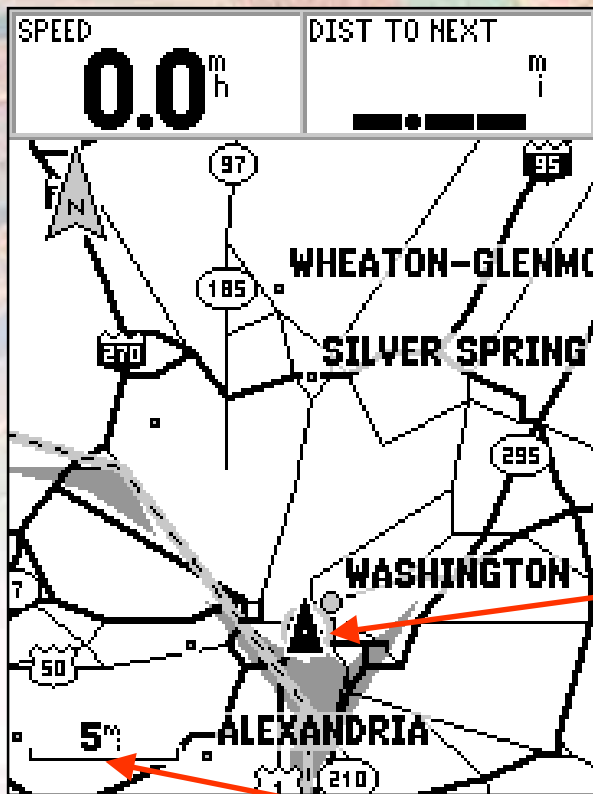
GPS Information Page Messages

- Autolocate – Directs the receiver to individually locate each satellite
- Acquiring Satellites – Receiver is looking for satellites and will display this message until it acquires at least three
- 2D GPS Location – The receiver is using only 3 satellites and can only calculate horizontal position
- 3D GPS Location – The receiver is using at least 4 satellites and can calculate altitude as well as horizontal position
- 2D Differential Location – The receiver is using 3 satellites and a form of differential correction to calculate horizontal position only
- 3D Differential Location – The receiver is using at least 4 satellites and a form of differential correction to calculate horizontal position and altitude

GPS Information Page Messages

- Lost Satellite Reception – The receiver is not able to receive satellite signals
- Simulating GPS – The unit is running in simulation mode and the actual GPS receiver is turned off

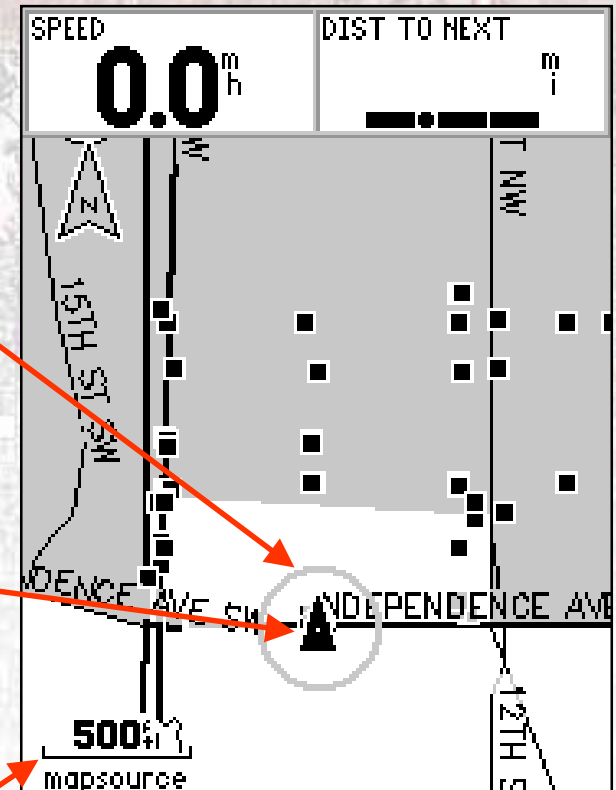
Map Page



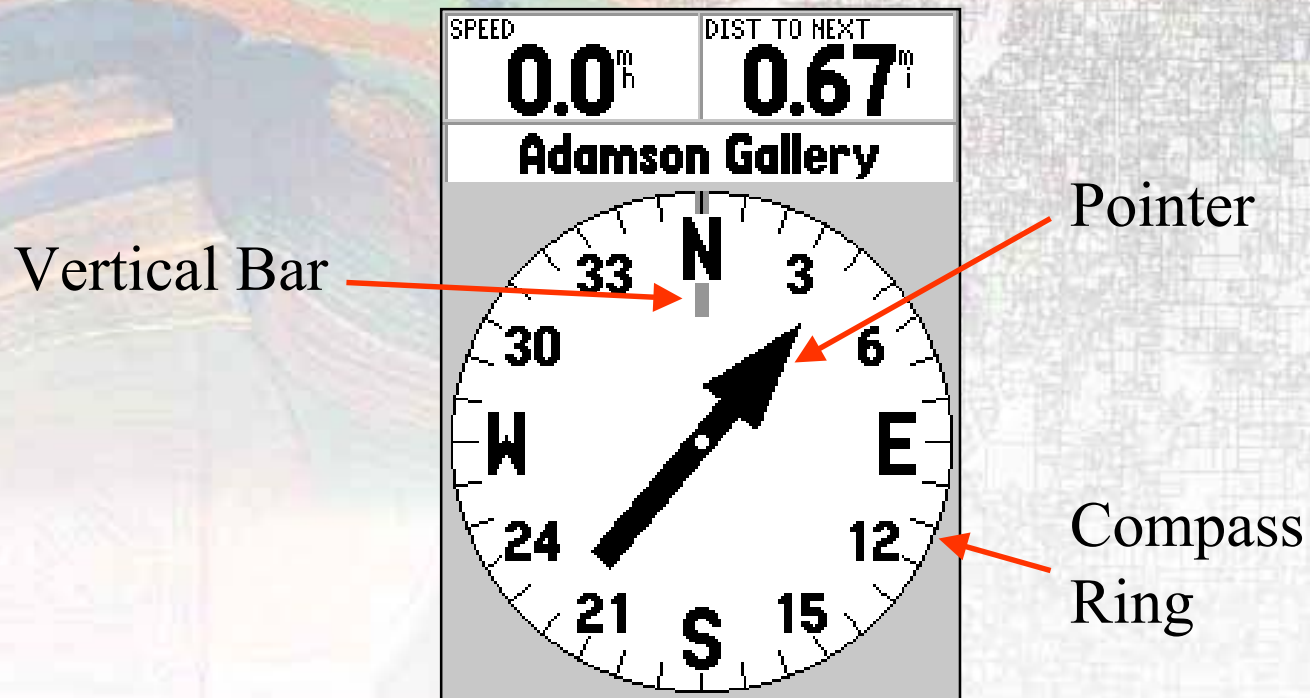
Predicted Error
Bounds

User Position

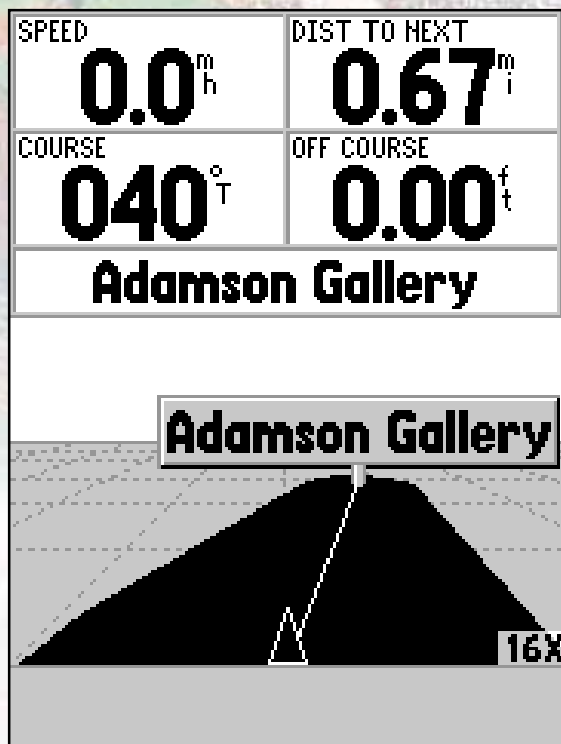
Scale Bar



Pointer Page



Highway Page



Active Route

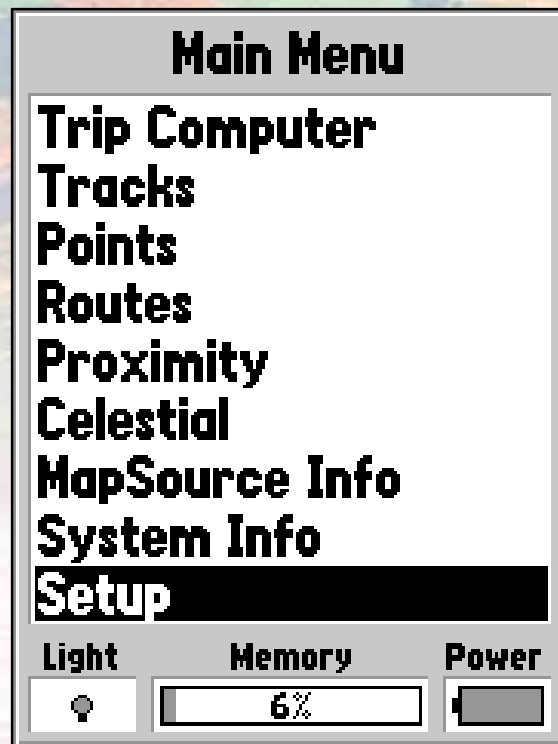
Active Route	
ADMSNG-THMSJF	
Waypoint	Distance
Adamson Ga	--+-- ^m
▶ Washington	0.30 ^m
Lincoln Mem	1.11 ^m
Thomas Jef	2.04^m
-----	--+-- ^m
Total	2.04 ^m

Topics Covered in this section

- Physical Layout of GPS
- Button Functions
- Powering up the Map76
- Simulator Mode
- Main Pages of the Map76

Adjusting Unit Settings

Rocker Key and Main Menu



All of the following unit settings are accessed from the Setup Page:

Time Setup
Unit Setup
Location Setup
Interface Setup
General Setup
Alarm Setup

Time Setup

General	Time	Units	Location
Time Format			
12 Hour			
Time Zone			
Alaska			
Daylight Savings Time			
Auto			
Current Date			
09-JAN-02			
Current Time			
01:18:29 ^{PM}			

General	Time	Units	Location
Time Format			
12 Hour			
Time Zone			
Eastern			
Daylight Savings Time			
Auto			
Current Date			
07-JAN-02			
Current Time			
09:03:25 ^{AM}			

General	Time	Units	Location
Time Format			
12 Hour			
Time Zone			
Alaska			
Daylight Savings Time			
Auto			
Current Date			
09-JAN-02			
Current Time			
01:17:37 ^{PM}			

General	Time	Units	Location
Time Format			
12 Hour			
Time Zone			
Alaska			
Daylight Savings Time			
Auto			
Current Date			
09-JAN-02			
Current Time			
01:17:37 ^{PM}			

- Eastern
- Central
- Mountain
- Pacific
- Alaska
- Hawaii

Unit Setup

General	Time	Units	Location
Elevation		Depth	
Feet		Feet	
Distance and Speed			
Statute			
Temperature			
Fahrenheit			
Direction Display			
Numeric Degrees			
Speed Filter			
Auto			

Location Setup

Time	Units	Location	A
Location Format			
hddd.ddddd°			
Map Datum			
WGS 84			
North Reference			
True			
Magnetic Variation			

Time	Units	Location	A
Location Format			
UTM UPS			
Map Datum			
NAD83			
<div><div>NAD83</div><div>Naparima BWI</div><div>Nhrwn Masirah</div><div>Nhrwn Saudi A</div><div>Nhrwn United A</div><div>Obsrvtorio '66</div></div>			

Interface Setup

tion	Alarms	Interface
Serial Data Format		
GARMIN		

tion	Alarms	Interface
Serial Data Format		
GARMIN		
GARMIN		
GARMIN DGPS		
NMEA		
Text Out		
RTCM In		
RTCM In/NMEA Out		
RTCM In/Text Out		
None		

RTCM NMEA screen

tion Alarms Interface

Serial Data Format

RTCM In/NMEA Out

Baud

4800

Beacon	Freq	Bit Rate
User	-----+----- h hz	200

Status

Check Wiring

SNR	Distance
----- dB	----- m

NDGPS Setup

ANNAPOLIS, MD

Status: Operational

RBn Antenna Location: 39° 0.67' N;76° 36.35' W

REFSTA Ant Location (A): 39° 0.61674' N;76° 36.55469' W

REFSTA Ant Location (B): 39° 0.63062' N;76° 36.5451' W

REFSTA RTCM SC-104 ID (A): 58

REFSTA RTCM SC-104 ID (B): 59

REFSTA FIRMWARE VERSION: RD00-1C19

Broadcast Site ID: 847

Transmission Frequency: 301 KHZ

Transmission Rate: 200 BPS

Signal Strength: 100 uv/m at 290 km

<http://www.navcen.uscg.gov/ADO/DgpsSelectStatus.asp>

Setting up WAAS DGPS

General	Time	Units	Language
Mode			
Simulator			
WAAS			
Disabled			
Enabled			
Disabled			
Beeper			
Key and Message			
Language			
English			

Topics Covered in this section

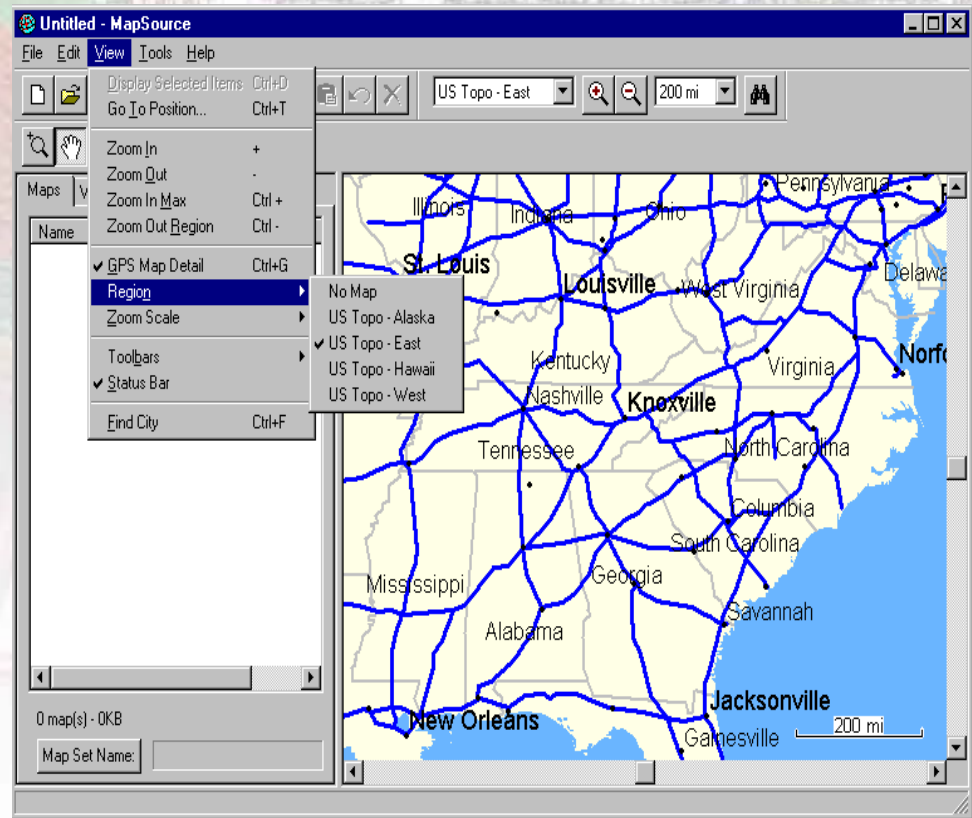
- Changing the settings of the Map76
- Setup for NDGPS use
- Setup for WAAS use

Using MapSource with Garmin GPS Map76

- Set GPS Interface to Garmin and connect the GPS unit to the PC port with the cable.
- MapSource has a wide variety of capabilities, for our purposes it will be used primarily to provide a background map while using the GPS Map76

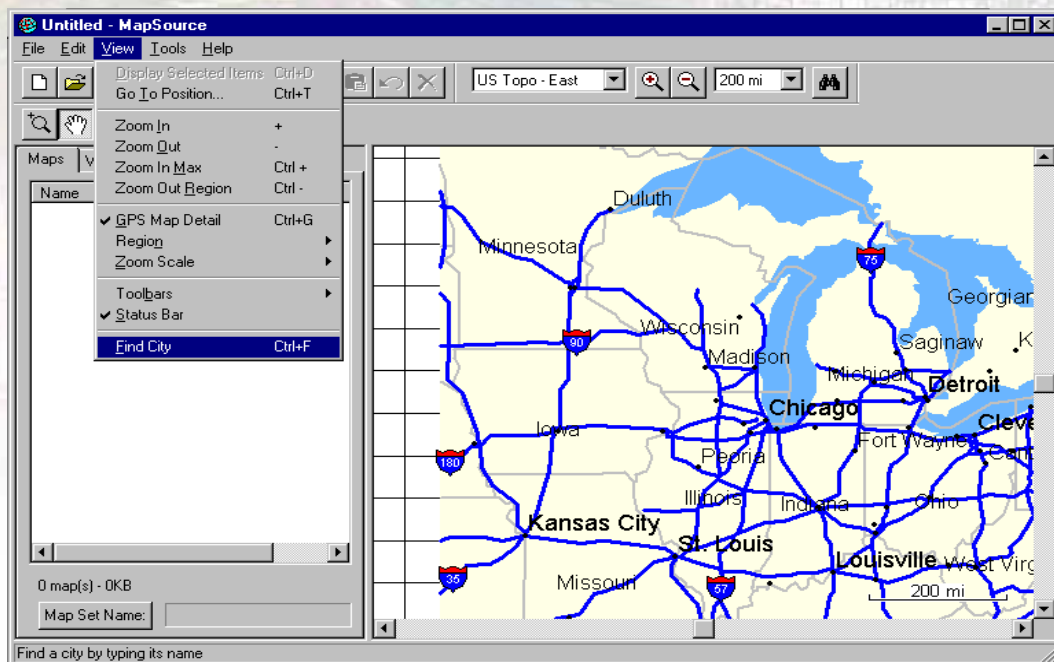
Selecting an Area in MapSource

- In the menu drop-down list select View>Region
- Choose the region where waypoints will be collected

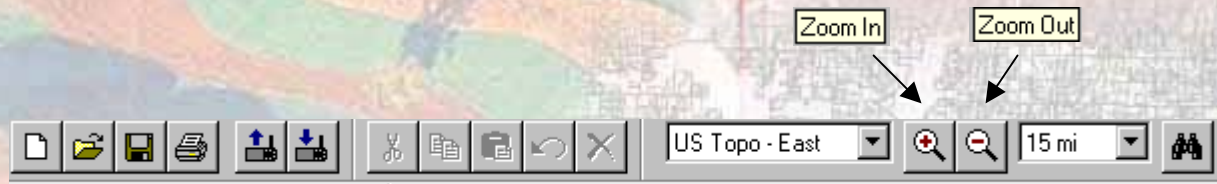


Choosing the Site Specific Location

- After choosing the Region for GPS waypoint collection, choose the site specific city
- To choose a city go to View>Find City and the Find City dialog box will open



Zooming in and out Using MapSource



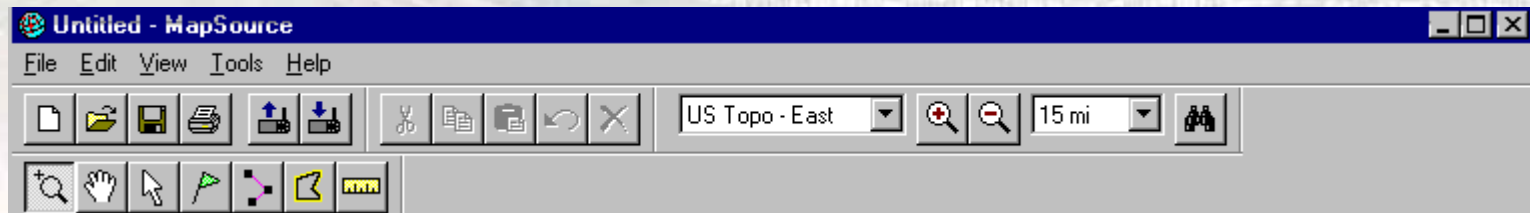
Click the Zoom In or Zoom out buttons to change the view scale but maintain the same center.

Zoom Tool 

Use the interactive zoom tool to draw a box on the map view to zoom to.

Selecting a Map to Upload to the GPS Unit

Use the Map tool on the tool bar to select the map area or maps areas that you want to load into the GPS



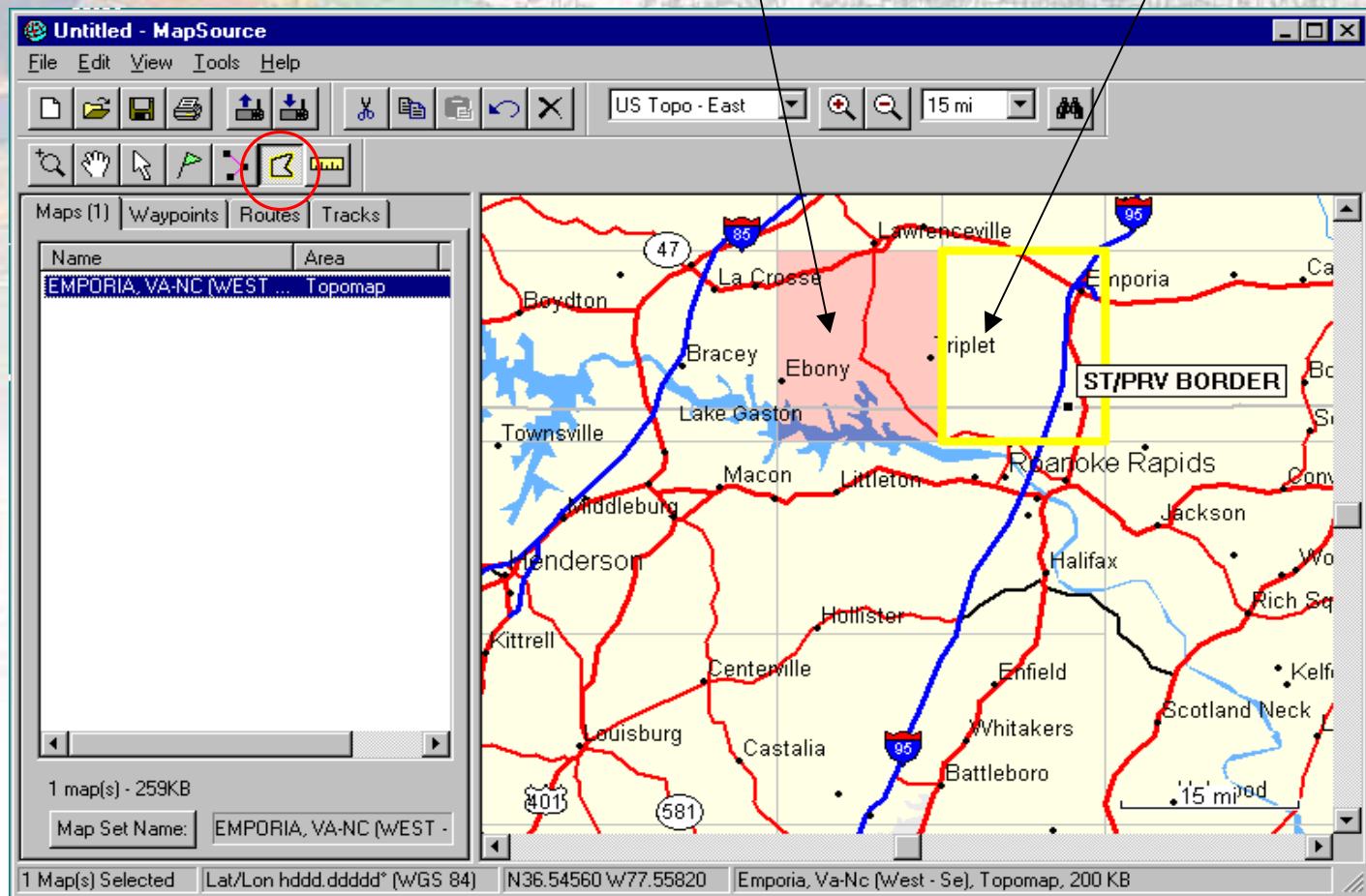
Map Tool

Selecting Map Areas to Add to the GPS Using the Map Tool

The map area selected to be added to the GPS

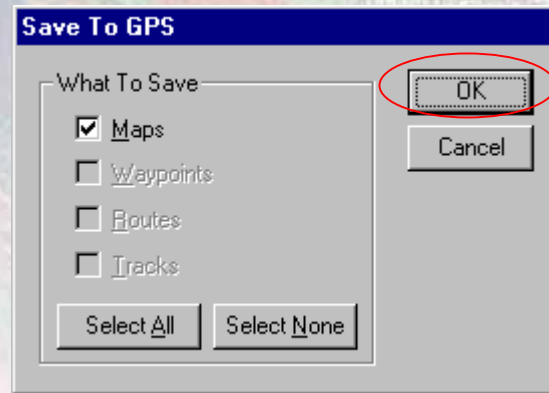
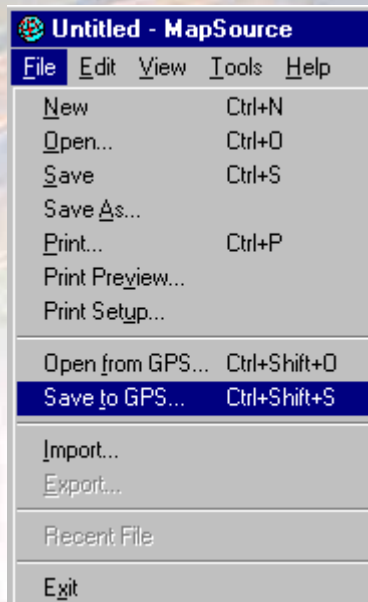
More than one map area can be selected to add to the GPS

The Map area or Maps areas that are selected to load up to the GPS unit

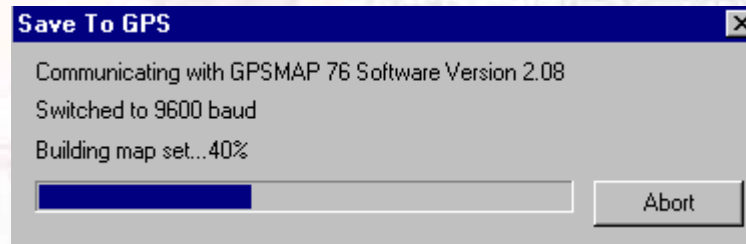


Saving a Map area or Map areas to the GPS Unit

In the File Drop-down Menu select **Save to GPS**

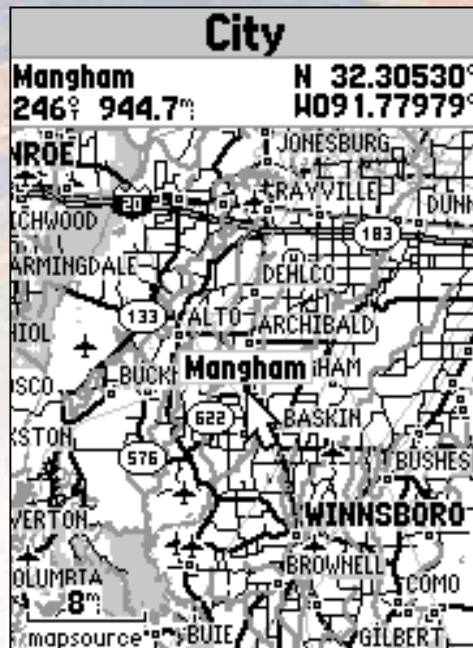


Select **OK** to start the upload process of the map to the GPS Unit



The status dialog box will indicate the download progress of the Map to the GPS

Detailed Data on the Maps is Available for GPS

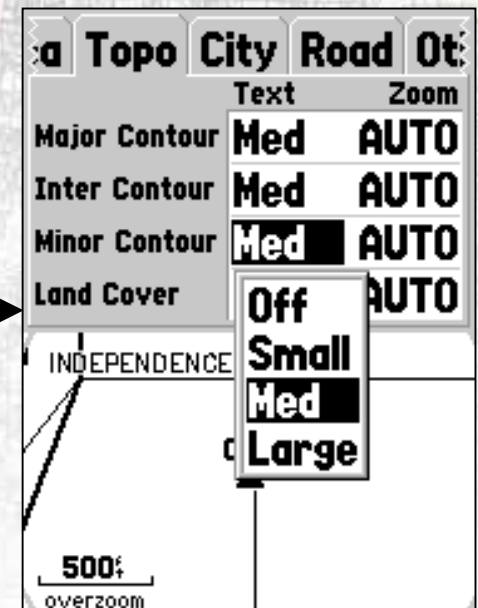
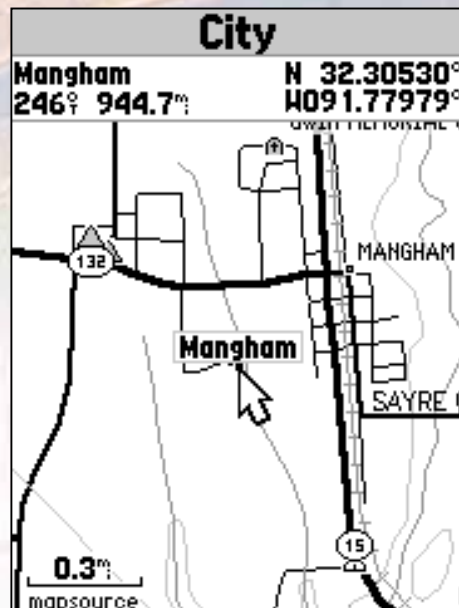


Detailed Data
is included on the
Mapsource maps
and can be used
with the GPS

Details Include:
Roads
Airports
Streams
Places
Railroads



Adjusting Map Display on the Map76



Topics Covered in this section

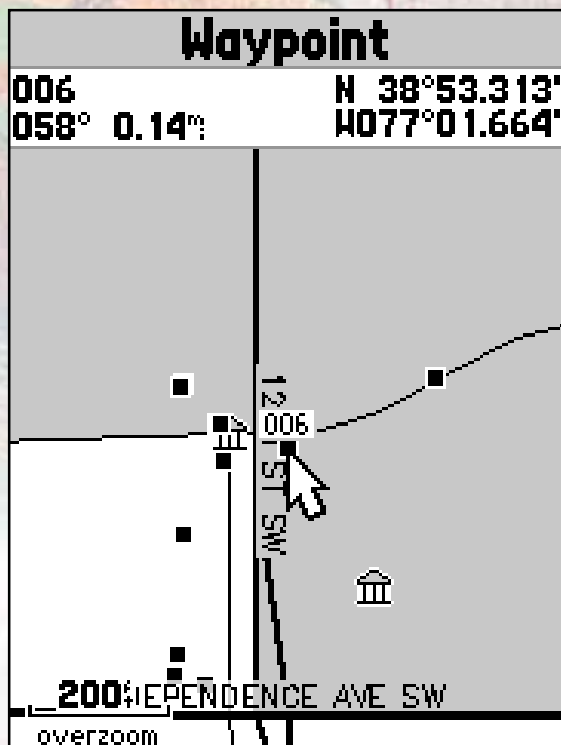
- Selecting base maps in MapSource software
- Uploading base maps to the Map76
- Adjusting map display on the Map76

Using the Map76 to Collect Data

Marking A Waypoint

Mark Waypoint	
▪	010
18-APR-02 19:56	
Location	
18 S 0286037	
UTM 4324520	
Elevation	Depth
397 ^{ft}	----- ^{ft}
<input checked="" type="checkbox"/> Show Name on Maps	
Delete	Map
Goto	OK

Display a Waypoint on the map



Using the Averaging Function

SPEED ELEVATION ACCURACY

Mark Waypoint

▪ 954

Location
N 38.88744°
W077.02995°

Elevation Depth
186' -----'

☒ Show Name on Maps

Delete Map

Goto OK

SPEED ELEVATION ACCURACY

Mark Waypoint

▪ 954

Location
N 38.88744°
W077.02995°

Average Location
MENU for Main Menu

☒ Show Name on Maps

Delete Map

Goto OK

SPEED ELEVATION ACCURACY

Average Location

Location
N 38.88744°
W077.02995°

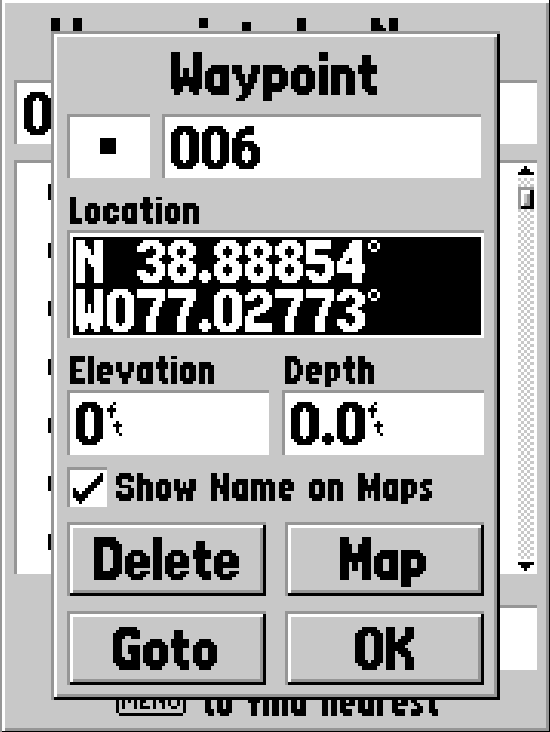
Estimated Accuracy
48.1'

Elevation
185'

Measurement Count
10

Save

Entering a Waypoint with user coordinates



A screenshot of a 'Waypoint' entry dialog box overlaid on a map. The dialog box has a title bar 'Waypoint' and a list box on the left showing '006' as the selected waypoint. The main area contains fields for 'Location' with coordinates 'N 38.88854°' and 'W 077.02773°', 'Elevation' set to '0' with a 'f' (feet) unit, and 'Depth' set to '0.0' with a 'f' unit. There is a checked checkbox for 'Show Name on Maps'. At the bottom are four buttons: 'Delete', 'Map', 'Goto', and 'OK'. Below the buttons is a small text label '(menu) to find nearest'.

Waypoint

006

Location

N 38.88854°
W 077.02773°

Elevation **Depth**

0' 0.0'

☒ Show Name on Maps

Delete **Map**

Goto **OK**

(menu) to find nearest

Route

ADMSNG-THMSJF

Use Map

Add Waypoint

Remove Waypoint

Reverse Route

Plan Route

Delete Route

[MENU] for Main Menu

Total 2.40^m

Route

ADMSNG-THMSJF

Points

Using Current Location

Waypoints

Points of Interest

Cities

Exits

Addresses

Intersections

Total 2.40^m

Waypoints by Name

006_____

- 006
- 007
- 008
- 009
- 010
- 011
- 012

Distance 057° 0.14^m

[MENU] to find nearest

Adding Points to a Route

Active Route

ADMSNG-THMSJF

Waypoint	Distance
Adamson Ga	---
Washington	0.30 ^m
Lincoln Mem	1.11 ^m
Thomas Jef	2.04 ^m
-----	---

Total 2.04^m

Route

ADMSNG-006

Waypoint	Distance
Adamson Ga	0.00 ^m
Washington	0.80 ^m
Lincoln Mem	1.61 ^m
Thomas Jef	2.53 ^m
006	3.22 ^m
-----	---

Total 3.22^m

Waypoint

006

Location

N 38.88854°

W 077.02773°

Elevation 0^f Depth 0.0^f

☒ Show Name on Maps

Delete Map

Goto OK

[MENU] to find nearest

Tracks

Main Menu

Trip Computer

Tracks

Points

Routes

Proximity

Celestial

MapSource Info

System Info

Setup

Light ☐ Memory ☐ Power ☐

6%

Tracks

Track Log **0%** Full

Save **Clear**

Saved Tracks **8** Unused

15-NOV-01

17-DEC-01

Set up track menu

Tracks

Track Log Setup

Recording
Stop When Full

Record Method
Auto

Interval
Normal

OK

Tracks

Track Log Setup

Recording
Stop When Full

Record Method
Time

Interval
00:00:01

OK

Tracks

Track Log Setup

Recording
Off

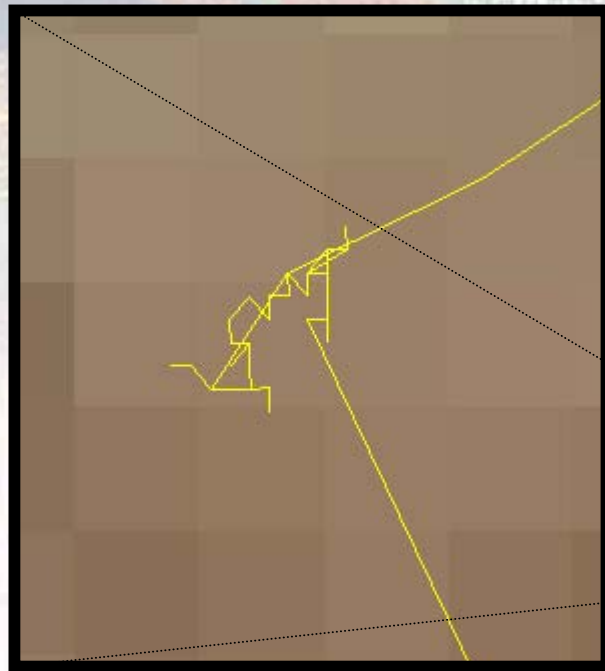
Record Method
Time

Interval
00:00:01

OK

Record Method: Time

Data collector must be careful while collecting data in track mode using time interval.



Save a Track

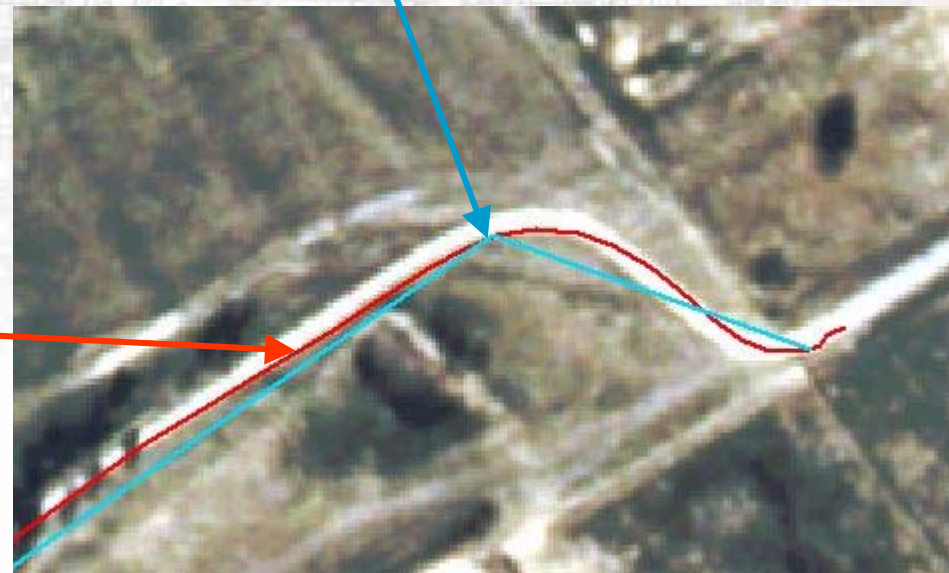
Track	
Name	
15-NOV-01	
Distance	Points
0.7 ^m	11
Area	
25.22799 ac	
<input type="checkbox"/> Show on Map and Highway	
Delete	Map
TracBack	OK

Comparison of Active Track Log and Saved Tracks



Feature created from an Active Track using distance interval.

Features created from a Saved Track



Feature created from an Active Track using time interval.

Comparison of Area data captured using points and tracks

Extent of hay cut captured in Waypoint Mode



Extent of hay cut captured in Track Mode

Navigation to a Point

Waypoints by Name

006_____

- 006
- 007
- 008
- 009
- 010
- 011
- 012

Distance **057° 0.14^m**

MENU to find nearest

Active Route

Points
Using Current Location

Waypoints

Points of Interest

Cities

Exits

Addresses

Intersections

Total

Active Route

Entertainment

All Types

Live Theater

Bar/Nightclub

Movie Theater

Casino

Golf Course

Skiing Center/Resort

Bowling Center

Total

SPEED **0.0^m**

DIST TO NEXT **0.69^m**

Polly Esther's Dc Inc

SPEED **0.0^m**

ELEVATION **185.4^{ft}**

ACCURACY **49.2^{ft}**

Simulating GPS

Go To Point

Navigate Route

Navigate Track

Stop Navigation

HAV for Man Overboard

07-JAN-02 09:59:17

N 38.88744°

W 077.02995°

Active Route

Points of Interest

Food & Drink

Lodging

Attractions

Entertainment

Shopping

Services

Transportation

Emergency & Govern

Manmade Places

Total

Entertainment
(Nearest)

Polly Esther's Dc Inc

D C Live

Bank

Babylon

Spy Club

Lost Atlantis

Zanzibar

Diva Night Lounge

Distance **010° 0.69^m**

MENU to find by name

Navigation along a route or track

SPEED 0.0^m_h ELEVATION 185.4^{ft} ACCURACY 49.2^{ft}

Simulating GPS

Go To Point
Navigate Route
Navigate Track
Resume Navigation
NAV for Man Overboard

07-JAN-02 01:49:20^{PM}

N 38.88744°
W077.02995°

SPEED 0.0^m_h ELEVATION 185.4^{ft} ACCURACY 49.2^{ft}

Simulating GPS

Go To Point
Select Track
15-NOV-01
17-DEC-01
NAV for Man Overboard

07-JAN-02 01:50:37^{PM}

N 38.88744°
W077.02995°

SPEED 0.0^m_h ELEVATION 185.4^{ft} ACCURACY 49.2^{ft}

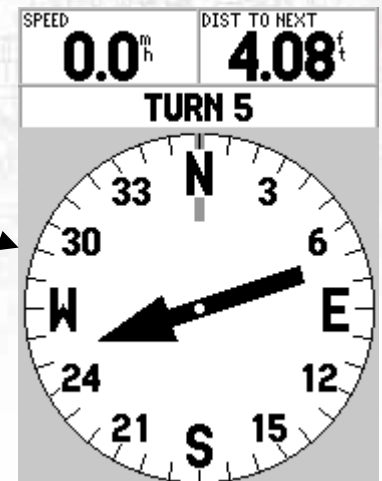
Simulating GPS

Go To Point
Direction to Navigate
15-NOV-01
17-DEC-01
NAV for Man Overboard
Original
Reverse

07-JAN-02 01:51:39^{PM}

N 38.88744°
W077.02995°

Active Track	
TRACBACK	
Waypoint	Distance
TURN 14	1.51 ^m
TURN 15	1.60^m
TURN 16	1.85 ^m
TURN 17	2.02 ^m
TURN 18	2.10 ^m
TURN 19	2.27 ^m
TURN 20	2.35 ^m
Total	6.02 ^m



Topics Covered in this section

- Marking a waypoint
- Setting up the track log
- Saving tracks
- Relative merits of waypoint and track data collection
- Navigation to a point
- Navigation along a route or track